Regional Freight Delay and Commodities Movement Study

Existing freight mobility and reliability issues

Portland Freight Committee, November 2, 2023

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Two Study Objectives Addressed with Today's Presentation

- Examine how congestion and unreliability on the regional transportation system impacts commodity movement
- Make recommendations for future regional policy and planning efforts to improve commodity movement

Regional Mobility Policy update

- Three parts to the new Regional Mobility Policy draft update:

1. Reducing Vehicle Miles Traveled (VMT) per capita
2. Building System Completeness (for all modes)
3. Regional Mobility based on average speeds throughout the day on the regional throughways

Regional Mobility Policy update based on average speeds

- Regional Mobility Policy update – Measures hours of reduced speeds throughout the day on regional throughways that exceed these thresholds:

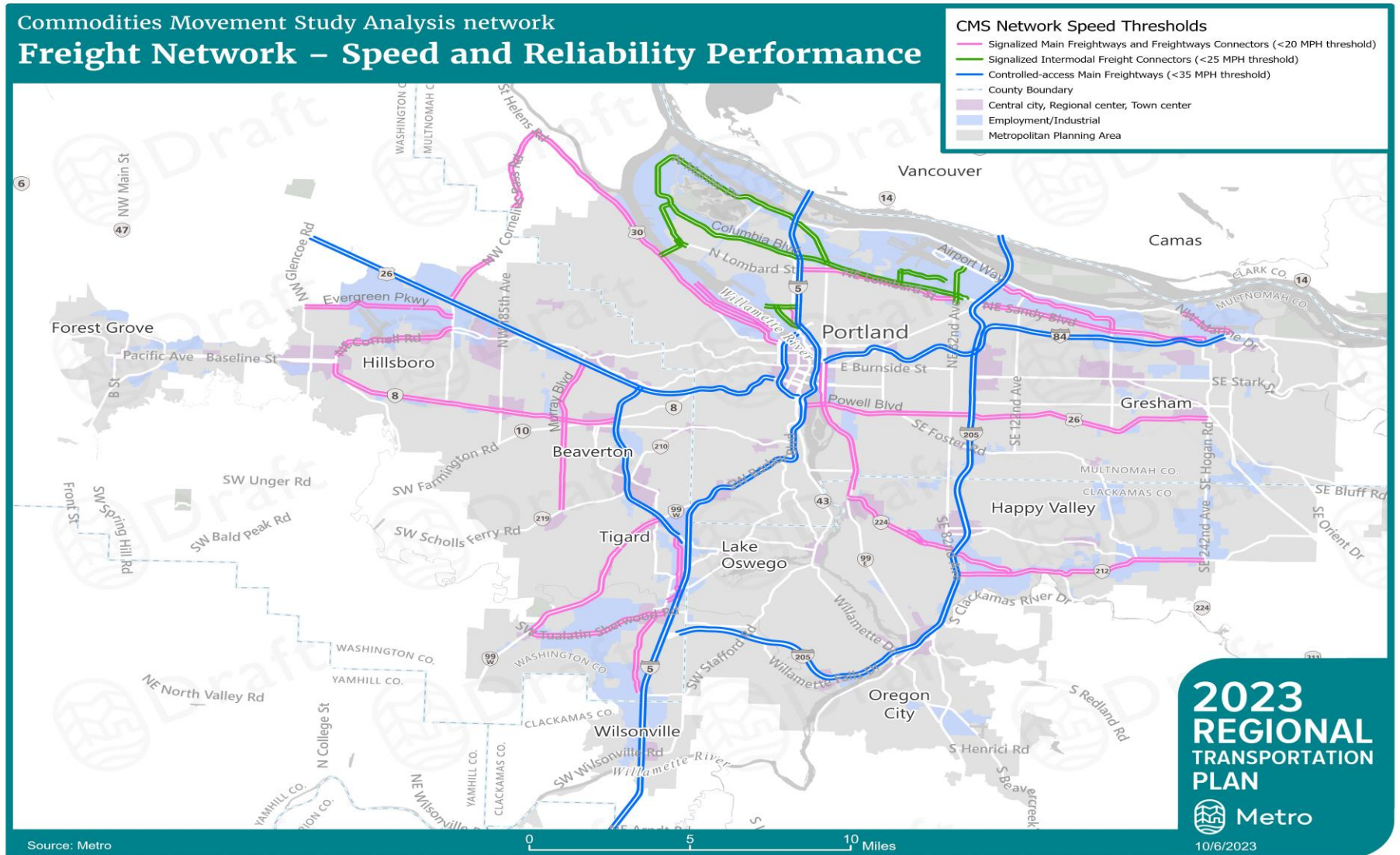
1. Less than 35 mph for up to 4 hours, on regional throughways with limited access
2. Less than 20 mph for up to 4 hours, on regional throughways with signals and other access

Commodities Movement Study (CMS) expands the network for freight mobility based on average speeds

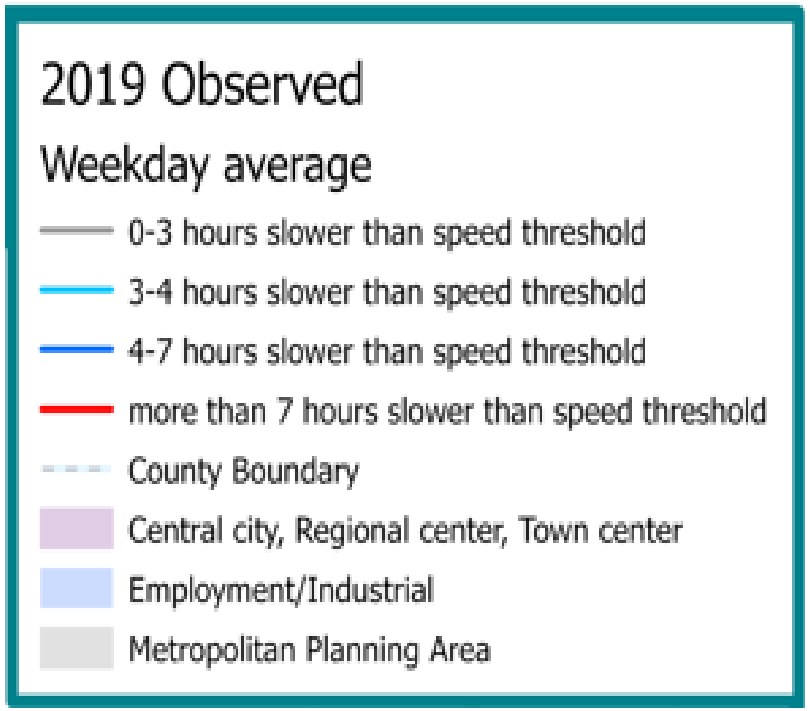
- Commodities Movement Study – Measures hours of reduced speeds throughout the day on the regional freight network that don't meet these thresholds:

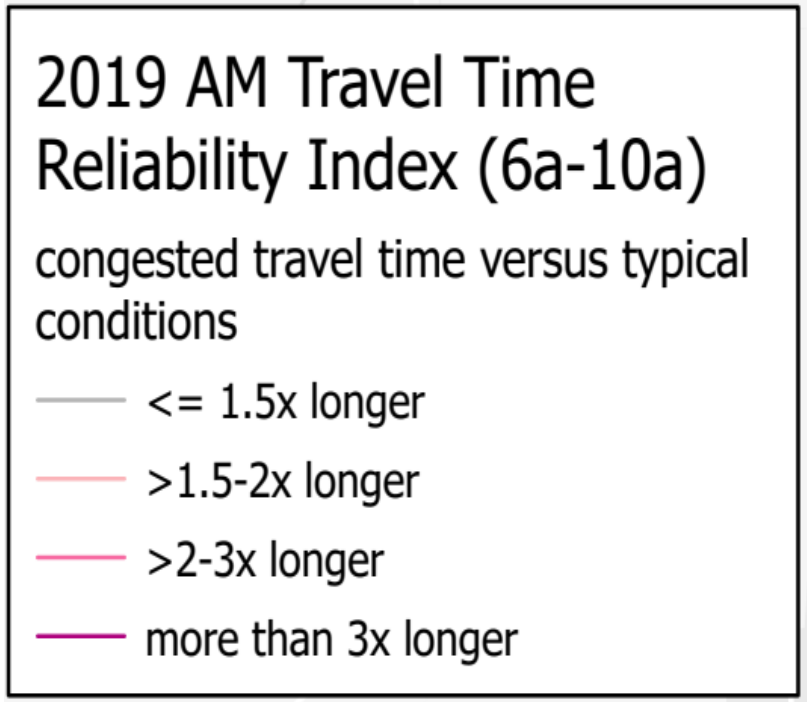
1. Less than 35 mph for up to 4 hours, on a main freight-way (throughway) with limited access
2. Less than 25 mph for up to 4 hours, on regional intermodal connectors
3. Less than 20 mph for up to 4 hours, on a main freight-way with signals and other access, and other key regional freight network routes

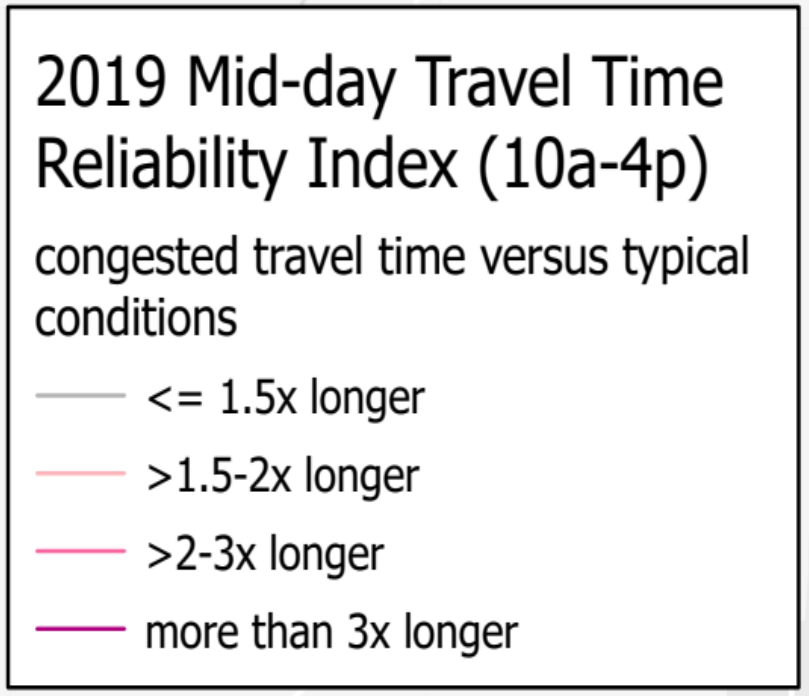
Freight network used for average speed and travel time reliability analysis



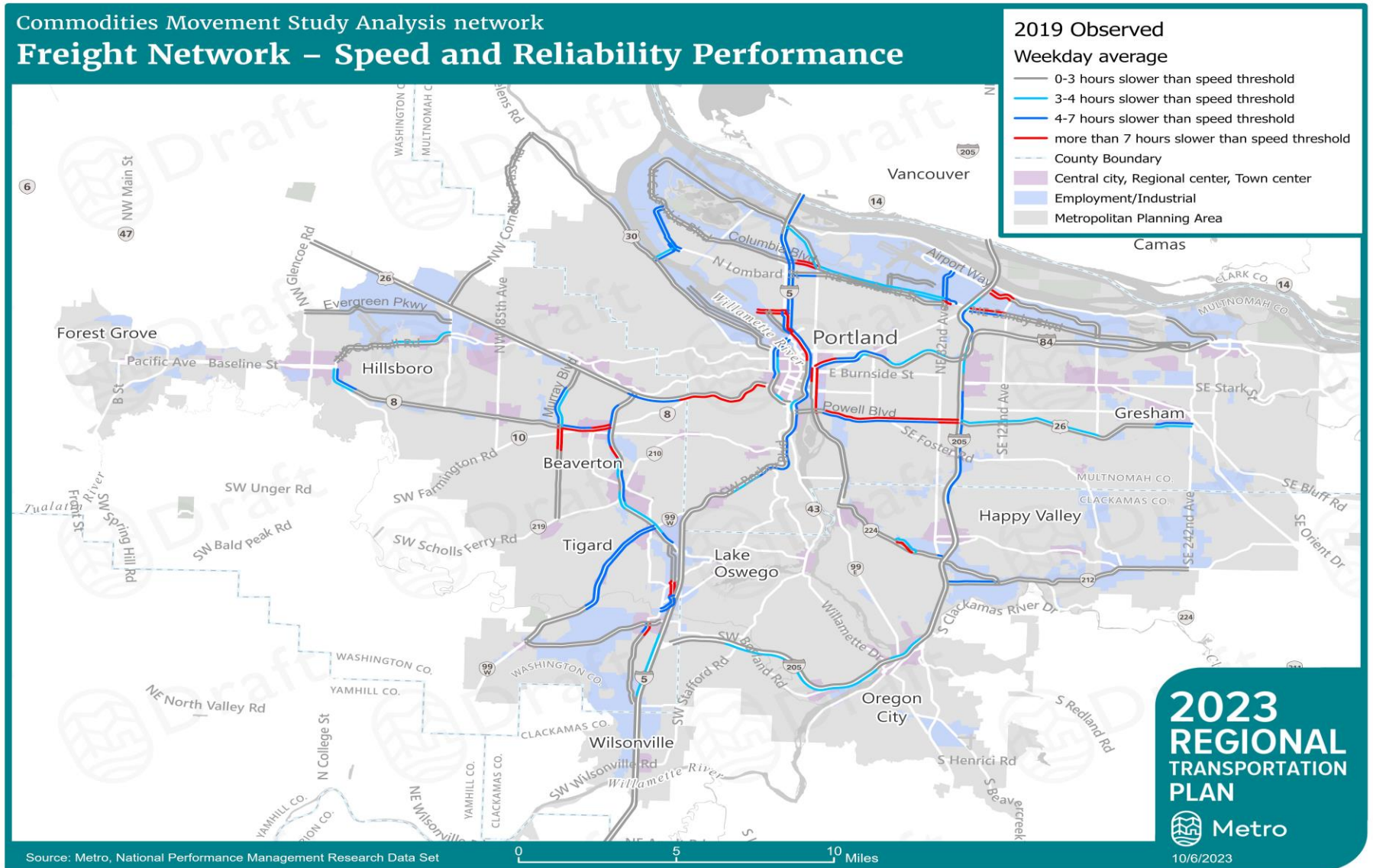
In Portland – 2019 average speeds and travel time reliability analysis thresholds







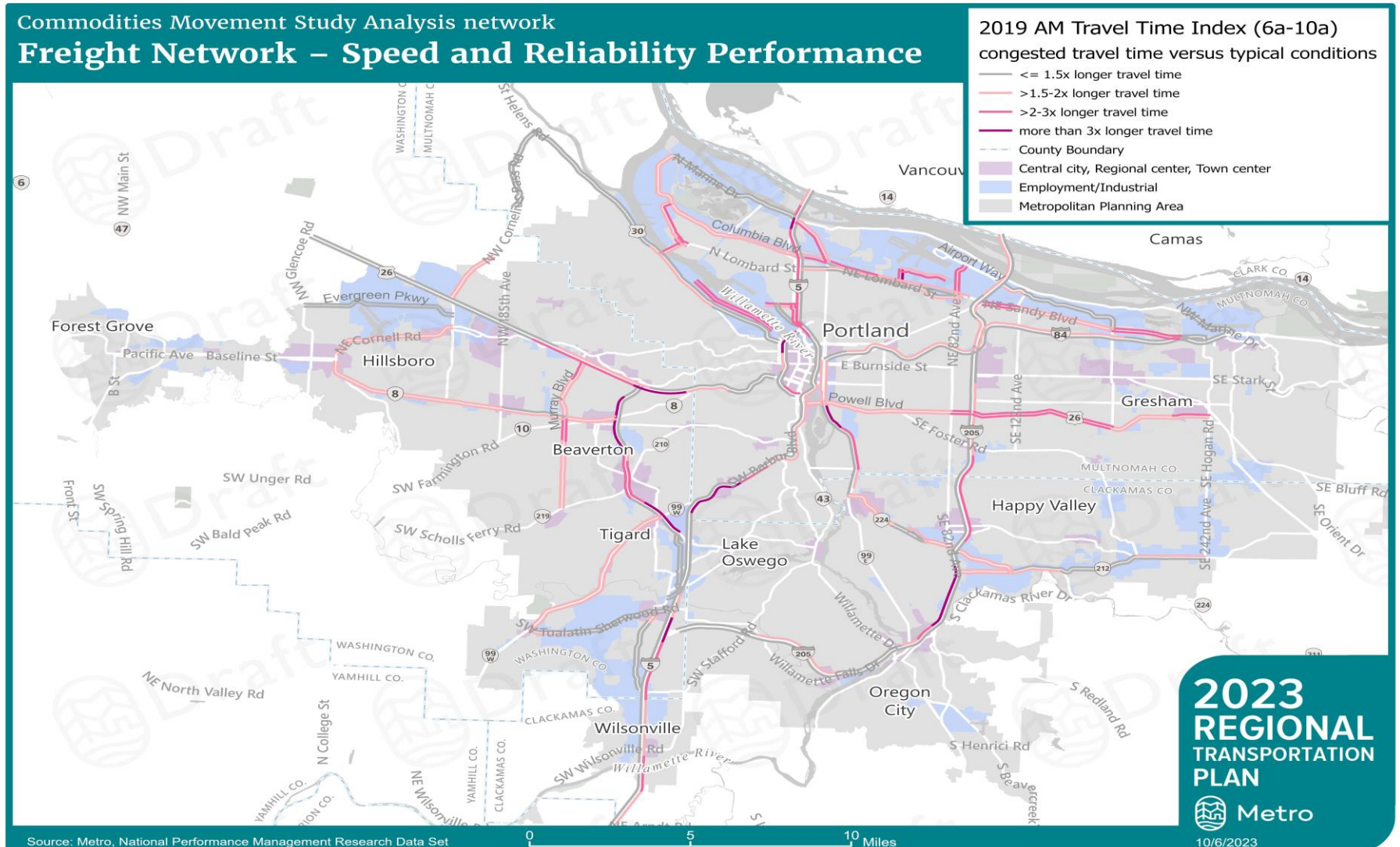
Freight Network Map - 2019 Observed average speeds with hours slower than speed threshold



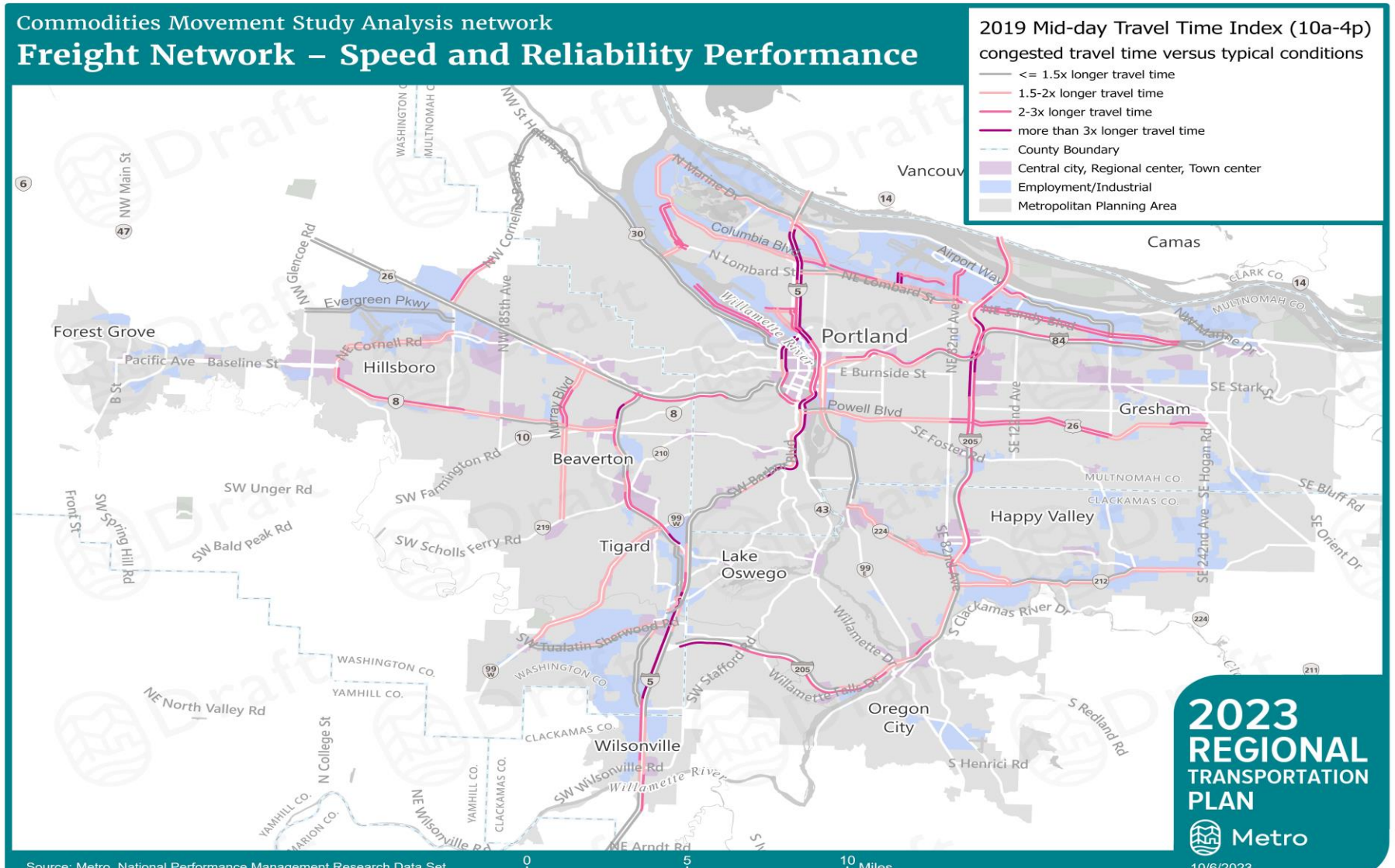
What is the Travel Time Reliability Index (TTRI)?

- Measures travel times at different times of the day for each of the segments on the regional transportation system
- Measures the ratio of the travel time at the 95th percentile to the 50th percentile (or mid-point all travel times)
- This study looks at the TTRI for the AM travel times from 6 to 10am, and the Mid-day travel times from 10 am to 4 pm
- PM peak travel times tend to be the slowest, and were not considered since freight trucks tend to avoid this travel time when possible
- The TTRI does not measure congestion; locations can be reliably congested during a period of the day.

2019 AM Travel Time Reliability Index Map (6 am to 10 am)



2019 Mid-day Travel Time Reliability Index Map (10 am to 4 pm)



Existing Mobility and Reliability Issues

- Study identified top locations with speed or reliability issues
  - HOC – Hours of Congestion (Hours below speed threshold)
  - TTRI – Travel Time Reliability Index (How long can it take relative to normal)
- The following slides summarizes the performance of corridor segments in Portland and how they compare relative to other facilities

Examples of Existing Mobility and Reliability Issues

CORRIDOR	LOCATION	SPEED (HOC)	TTR (AM)	TTR (MIDDAY)
I-405	NB (US 26 to I-5)	3.6 to 4.5		3.9 to 4.7
	SB (US 26 to I-5)	4.4 to 6.4	2.7 to 3.7	3.1 to 4.2
I-5 (North)	SB (Marine to I-84)	5.3 to 9.1	2.0 to 2.4	2.3 to 3.3
	NB (I-84 to Vancouver WA)	5.0 to 6.8		4.5 to 6.7
I-84	WB (I-205 to OR99E)	3.9 to 7.7		2.0 to 2.1
	EB (OR99E to Sandy)	3.5 to 5.6		1.8 to 2.2
I-5 (South)	SB (I-205 to Boones Ferry)	3.1		4.7
	NB (Capitol Road to Multnomah Blvd.)	3.1	2.3	
	NB (Dartmouth to Capitol Road)	Not applicable	3.2	

- **I-405** has Tier 2 duration of low speeds, but higher degree of unreliability
- **I-5 North** has generally longer duration of low speed (Tier 1 and Tier 2) and high midday unreliability
- **I-84** also longer duration of lower speed, though reliability better than I-5 North
- **I-5 South** generally fewer hours of low speed, but unreliability higher in some segments

Existing Mobility and Reliability Issues

CORRIDOR	LOCATION	SPEED (HOC)	TTR (AM)	TTR (MIDDAY)
Columbia Blvd	EB (I-5 to OR 99E)	11.1	2.3	2.2
	WB (OR99E to I-5)	11.2	1.8	1.8
	EB (OR213 to I205)	10.0	2.0	2.9
Airport Way	WB (122nd to I-205)	7.7	N/A	2.1
	EB (122nd to I-205)	8.4	N/A	N/A
Powell Blvd	WB (I-205 to Ross Is)	7.3 to 9.9	1.8 to 2.1	1.8 to 2.2
	EB (82nd to I-205)	9.2	2.2	2.4
	EB (Ross Is to 82nd)	7.0	N/A	N/A

- Three arterials also stand out and have 7+ hours with speeds below the threshold (20 mph for signalized roadways)
  - **Columbia Boulevard** had longest duration under the speed threshold and identified reliability issues in AM and midday
  - **Powell Boulevard** has some reliability issues while **Airport Way** generally does not have reliability issue except for the westbound midday

Next Steps: Final Report Outline

- Executive Summary

1. Introduction
2. Project Team and Stakeholder Participation
3. Regional Freight Policy Framework and Policy Questions
4. Commodities Movement by Truck
5. Network Performance
6. Trends Impacting Current and Future Commodity Movements
7. Addressing Goods Movement Performance
8. Study Recommendations and Freight Policy
9. Next Steps and Further Research

Comments and feedback

Questions?